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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,328	02/12/2002	Mary Ann D. Brow	FORS-06930	5712

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EXAMINER

SITTON, JEHANNE SOUAYA

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,328

Applicant(s)

BROW ET AL.

Examiner

Jehanne Souaya Sitton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 101-125 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 101-125 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. Currently claims 101-125 are pending in the instant application. Claims 1-100 have been canceled. An action on the merits of claims 101-125 follows.

Priority

2. The instant claims have been awarded an effective filing date of 7/12/1996. Although the instant application claims priority to application 08/599,491, the claims have not been awarded the filing date of the '491 application because said application does not provide support for the broad recitation of an oligonucleotide comprising "a charged adduct".

Inventorship

3. In view of the papers filed under 37 CFR 1.48(b), the inventorship in this nonprovisional application has been changed by the deletion of Mary Ann D. Brow and David Michael Olive as inventors.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of the file jacket and PTO PALM data to reflect the inventorship as corrected.

Claim Rejections - 35 USC § 112

Indefinite

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 101-125 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 101 recites "said first portion" but it is unclear what 'first portion' is being referred to as more than one portion are recited.

Claim 113 lacks sufficient antecedent basis for the recitation of "said first target nucleic acid" because the term "first target nucleic acid" does not occur previously. Accordingly, it is unclear if a first and 2nd target nucleic acid exist or if the claims refer to a single target nucleic acid. Additionally, claim 113 lacks antecedent basis for the recitation of "said first portion" because no 'first portion' is recited previously. It is therefore unclear what the metes and bounds of the claims are.

New Matter

6. Claims 101-125 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a NEW MATTER Rejection.

The pending claims do not represent claims filed with the original first parent specification. The preliminary amendment filed 2/12/2002 canceled all previously filed claims and added claims directed to methods and kits. The amendment provided no statements for support in the specification with regard to the newly submitted claims 53-125. A thorough review of the specification and parent applications reveals that the specification does not teach

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providing any of the reagents set forth in the claims in kit format. At most, the specification at page 38, contemplates “methods and compositions” for treating nucleic acid and for detection and characterization of nucleic acid sequences. While the specification teaches using specific kits in some of the examples, the specification does not teach or suggest packaging the reagents of the instant invention in kit format. Accordingly, the newly submitted claims directed to “kits” introduce new matter into the instantly claimed invention.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim interpretation: the following rejections are set forth with regard to claims directed to kits. As the specification provides no definition or structural limitations for a “kit”, the claims have been given their broadest reasonable interpretation. As such, the following rejections are set forth with the interpretation that the claims are directed to constructs or compositions. It is further noted that the reagents set forth in the claims are interpreted not to be limited to be

contained within the same composition as a kit, for example, can comprise different compositions.

9. Claims 101-104, 107-112, 114-117, and 123-125 are rejected under 35 U.S.C. 102(b) as being anticipated by Lyamichev et al (hereinafter referred to as Lyamichev; Science, vol. 260, May 1993, pages 778-782).

Lyamichev teaches a composition comprising 1) a cleavage agent (polymerase) which is a thermostable (stable at a specific temperature, cleaves at 72 deg. C) structure specific nuclease which comprises a thermostable 5' nuclease (DNAP-Taq, which has a portion of the amino acid sequence of the nuclease is homologous to a portion of the amino acid sequence of a thermostable DNA polymerase derived from a thermophilic organism) (claims 107-111; see Fig. 1); 2) a buffer solution (page 783, note "5"; instant claim 112); 3) a first oligonucleotide comprising a charged adduct (a "charged adduct" is broadly interpreted to encompass a single nucleotide or charged phosphate group) and a portion completely complementary to a first region of a target nucleic acid, (for example the cleaved arm on the substrate strand in figure 1A; 4) a second oligonucleotide comprising a 3' portion and a 5' portion, said 5' portion completely complementary to a second region of said target nucleic acid downstream of and contiguous to said first portion (the primer in figure 1A); and 5) a target nucleic acid, (the template strand in figure 5A; instant claim 114).

It is noted that the method of Lyamichev utilizes more than one template strand in each reaction. As the claims do not make clear that the first target and the second target are different, such teaching is interpreted to encompass instant claim 115.

With regard to claim 116, the claim sets forth no structural limitations for “linker”. Therefore, the recitation of “linker” has been given its broadest reasonable meaning which encompasses the sugar group of the nucleotide.

With regard to claim 117, Lyamichev teaches that the 5’ arm which is cleaved (the first oligonucleotide) comprises a label which is detectable (see figure 2; instant claims 117 and 123).

With regard to claims 124 and 125, Lyamichev teaches that only certain regions are cleaved in the first oligonucleotide, therefore Lyamichev inherently teaches that the first oligonucleotide comprises an uncleavable region which is attached to the charged adduct.

With regard to claim 104, Lyamichev teaches resolving the components of the reaction on a gel, which is a “solid support”.

It is noted that the cleaved nucleic acid can also be considered the second oligonucleotide and the primer can be considered the first oligonucleotide. As such, with regard to claims 102 and 103, wherein the cleaved nucleic acid is interpreted as the 2nd oligonucleotide, Lyamichev teaches (figure 1a) that the 2nd oligonucleotide comprises and consists of a single nucleotide not complementary to the target. For claim 103, the 3’ portion is broadly interpreted to encompass the 3’ terminal nucleotide, therefore, Lyamichev inherently teaches the limitation “wherein the 3’ portion... consists of a single nucleotide not complementary to said target nucleic acid.

10. Claims 101, 112-115, 117, 118 and 123 are rejected under 35 U.S.C. 102(b) as being anticipated by Livak et al (hereinafter referred to as Livak; PCR methods and applications, vol. 4, pages 357-362, June 1995).

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Livak discloses a composition comprising 3 oligonucleotides (a probe and 2 primers) and Taq polymerase (cleavage agent) in a buffer solution, wherein the probe is labeled with a fluorescent dye at its 5' end (charged adduct) (instant claims 101, 112, 113, 117, and 118). It is further noted that any of the nucleotides at the 5' end of any of the oligonucleotides can also be considered a "charged adduct" (claim 123).

11. Claims 101, 104-107, 114-119, and 122-125 are rejected under 35 U.S.C. 102(b) as being anticipated by Urdea (US Patent 5,380,833; 1/10/1995).

Urdea teaches a reaction comprising a cleavage agent (restriction enzyme) a first oligonucleotide and a 2nd oligonucleotide hybridizable to a target sequence (see figure 2B(a); instant claim 101). Urdea teaches that both oligonucleotides are "attached" to the solid support (instant claims 104-106). The term "structure specific" nuclease is not defined by the specification. Therefore the recitation has been broadly interpreted to encompass a restriction enzyme (claim 107). Urdea teaches that labels include fluorescein (see col. 7, lines 36-65; instant claims 117-119). Urdea also teaches a charged adduct that comprises an amino-modified base (see col.22, lines 18-40 and col. 24, lines 21-65, instant claim 122). As the claims do not make clear that the first target and the second target are different, such teaching of more than one target in a reaction is interpreted to encompass instant claim 115.

12. Claims 101, 107, 112-116, 120, 121, and 123-125 are rejected under 35 U.S.C. 102(b) as being anticipated by Corey (J. Am. Chem. Soc, 1995, vol. 117, pages 9373-9374).

Corey teaches a composition comprising 2 oligonucleotides (the first oligonucleotide: primer comprising amino acids at 5' end, 2nd oligonucleotide: one of the strands of DNA template; see figure 1a) and a DNA polymerase (cleavage agent) (see page 9373, 2nd col 2, 2nd para). Corey teaches that the first oligonucleotide is modified at it's 5' end with a charged adduct (Lysine or arginine amino acid, see table 1; instant claims 101, 112, 120, 121, and 123). Further, Corey inherently teaches that the first oligonucleotide comprises an uncleavable region which is attached to the charged adduct because neither the adduct nor the first oligonucleotide are cleaved in the reaction of Corey (instant claims 124-125). The composition of Corey comprises the more than one copy of the target (instant claims 113-115). Further, the term "linker" in claim 116 has been broadly interpreted to encompass any of the molecules between the 5' most lysine and the primer.

13. Claims 101, 107-119, and 123 are rejected under 35 U.S.C. 102(e) as being anticipated by Mayrand (US Patent; 5,691,146; 5/5/1995).

Mayrand discloses a composition comprising 3 oligonucleotides (a probe and 2 primers) and Taq polymerase (cleavage agent) in a buffer solution, wherein the probe is labeled with a fluorescent dye at it's 5' end, such as flourescein (charged adduct) (instant claims 101, 112, 113, 117-119; see abstract; col. 4, lines 37-50; and col. 9, lines 6-45). It is further noted that any of the nucleotides at the 5' end of any of the oligonucleotides can also be considered a "charged adduct" (claim 123). It is further noted that the teaching of a thermostable polymerase with 5' nuclease activity is inherently a teaching of the limitations in claims 107-111. Further, Mayrand teaches a linker for the charged adduct (claim 116, see col. 8, lines 46-60). As the claims do not

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make clear that the first target and the second target are different, such teaching of more than one target in a reaction is interpreted to encompass instant claim 115.

Conclusion

14. No claims are allowable over the cited prior art.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Jehanne Sitton whose telephone number is (571) 272-0752. The examiner can normally be reached Monday-Thursday from 8:00 AM to 5:00 PM and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (571) 272-0782. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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Jehanne Sitton
Primary Examiner
Art Unit 1634

6/25/04